

## **4. DETERMINATION OF WIDESPREAD IMPACTS**

The financial impacts of undertaking pollution controls could potentially cause far-reaching and serious socioeconomic impacts. If the financial tests outlined in Chapter 2 and 3 suggest that a discharger (public or private) or group of dischargers will have difficulty paying for pollution controls, then an additional analysis must be performed to demonstrate that there will be widespread adverse impacts on the community or surrounding area. There are no economic ratios per se that evaluate socioeconomic impacts. Instead, the relative magnitudes of indicators such as increases in unemployment, losses to the local economy, changes in household income, decreases in tax revenues, indirect effects on other businesses, and increases in sewer fees for remaining private entities should be taken into account when deciding whether impacts could be considered widespread. Since EPA does not have standardized tests and benchmarks with which to measure these impacts, the following guidance is provided as an example of the types of information that should be considered when reviewing impacts on the surrounding community.

In certain circumstances, the information presented here may not adequately address all potential impacts. At a minimum, however, the analysis must define the affected community (the geographic area where project costs pass through to the local economy), consider the baseline economic health of the community, and finally evaluate how the proposed project will affect the socioeconomic well-being of the community. Applicants should feel free to consider additional measures not mentioned here if they judge them to be relevant. Likewise, applicants should not view this guidance as a check list. In all cases, socioeconomic impacts should not be evaluated incrementally, rather, their cumulative effect on the community should be assessed. More detailed guidance on the factors that should be considered when evaluating the socioeconomic impacts to communities of meeting water quality standards is given below.

### **4.1 Define Relevant Geographical Area**

One important factor in determining the magnitude of these impacts is defining the geographical area in which they occur. In some cases, one community's loss may be another community's gain, as in the case of a plant moving to another community. In the case of municipal pollution control projects, the affected community is most often the immediate municipality. There are, however, exceptions where the affected community includes individuals and areas outside the immediate community. For example, if business activity in the region is concentrated in a nearby community and not in the immediate community, then the nearby community may also be affected by loss of income in the immediate community and should be included in the analysis. If business activity of the region is concentrated in the immediate community, then outlying communities dependent upon the immediate municipality for employment, goods, and services should also be included in the analysis. Similarly, if a large number of workers

commute to an industrial facility that is significantly affected by the costs, then the affected community should include the home communities of commuters as well as the immediate community.

The relevant geographic area for evaluating the socioeconomic effects of compliance by private entities varies with each situation. For impacts from actions by a private entity, the area will typically be determined by the area in which the majority of its workers live and where most of the businesses that depend on it are located. There are no simple rules for defining the relevant area or community; the decision is based on the judgement of the discharger and state, subject to EPA review.

#### **4.2 Determine Whether Impacts are Widespread: Public-Sector Entities**

In demonstrating that impacts will be substantial, the applicant will have shown that compliance with water quality standards would be burdensome to the community. To demonstrate that impacts will also be widespread, the applicant must examine the estimated change in socioeconomic conditions that occur as a result of compliance.

There are no explicit criteria by which to evaluate widespread impacts. It is recommended, however, that changes in the socioeconomic indicators listed below be considered. For each indicator listed, the applicant should estimate the potential change from precompliance conditions if the community were to adopt pollution controls.

- Median Household Income;
- Community Unemployment Rate;
- Overall Net Debt as a Percent of Full Market Value of Taxable Property;
- Percent of Households Below Poverty Line;
- Impact on Community Development Potential; and
- Impact on Property Values.

Precompliance estimates of the first three indicators were considered in Chapter 2 in the Secondary Test. Estimated changes should be described qualitatively in **Worksheet M**. Depending on the size and type of impacts on industrial and commercial discharges, these estimated changes may be relatively large or small. In addition to changes in income, unemployment, and debt, affected communities may be faced with impaired development opportunities if pretreatment requirements or significantly higher user fees are imposed by the POTW. The municipality should therefore assess the potential for the loss of future jobs and personal income to the community if businesses would chose not to locate in the affected community. The potential for impaired development opportunities can be judged, in part, by comparing post-compliance costs to costs in neighboring communities. The cost of pollution control may also have an adverse effect on property values. Where property taxes are used to finance the project, property values may fall in response to higher taxes. Similarly, if the project will be financed through user fees, demand for

property in the community may fall, thus decreasing the value of property in the community.

The extent to which estimated changes can be interpreted as significant, however, will depend on the health of the community before compliance. It is therefore not possible to identify acceptable or unacceptable estimated changes for each indicator. For example, if Community XYZ were determined to be in a weak condition before compliance. As defined in Chapter 2, but the evaluation of widespread impacts suggests that all of the indicators listed above will remain virtually unchanged, then widespread impacts have not been demonstrated. Alternatively, if Community XYZ were very healthy, the estimated change in the indicators listed above would have to be very large in order for widespread impacts to occur.

In addition, there may be secondary impacts (not captured by the primary and secondary tests) to the community. Secondary impacts might include depressed economic activity in a community resulting from loss of purchasing power by persons losing their jobs due to increased user fees. The next section describes secondary impacts in greater detail.

#### **4.3 Determine Whether Impacts are Widespread: Private-Sector Entities**

If the financial tests suggest that a private entity or group of entities will have difficulty paying for pollution controls, then an additional analysis must be performed to demonstrate that there will be widespread adverse impacts on the community or surrounding area. The current economic condition of the affected community and the role of the affected entities within the community should first be considered when determining whether the affected community will be able to absorb the impacts of reduced business activity or closures. Through property taxes and employment, the entity(ies) may be a key contributor to the economic base of the affected community. In this situation, reductions in employment caused by compliance with the water quality standards could be widespread if workers have no other employment opportunities nearby. Impacts may also be significant where the entity(ies) is a primary producer of a particular product or service upon which other nearby businesses or the affected community depend. The impacts of reduced business activities or closure will be far greater in this case than if the products are sold elsewhere. These two examples illustrate how the interdependence between the affected entity(ies) and the affected community is a major factor in demonstrating that the impacts are not only substantial, but also widespread.

As important as the extent of socioeconomic impacts is the type of impacts that might occur. A worksheet has been provided to assist applicants in their evaluation of socioeconomic impacts. **Worksheet N** is designed as a list of the factors applicants should consider in determining whether impacts are not only substantial but also widespread. The worksheet is organized to follow the text below. To make the most

efficient use of this worksheet, applicants should read the remainder of Section 4.3 and then collect the data suggested in the worksheet. Applicants should feel free, however, to use anecdotal information to describe any current community characteristics or anticipated impacts that are not listed in the worksheet.

Potentially, one of the most serious impacts on the affected community's economy is the loss of employment caused by a reduction in business activity or closure. The size of this impact is dependent on the number of jobs lost relative to the total number of jobs in the community, and to the job opportunities available in the community. Typically, a decline in employment leads to a decline in personal income in the affected community. The total amount of income lost by the affected community will depend, in part, on the future job prospects of those losing their jobs. If employees leave the area in search of opportunities, all of their income will be lost to the affected community. Workers who are unable to market the full range of their skills to a new employer will receive lower wages in subsequent jobs. If employees stay in the area and find lower paying jobs or receive unemployment benefits, the loss of income to the affected community would be equal to the difference between existing and future income; the cost of unemployment benefits is calculated as a government expense or an expense borne someplace else, whichever is appropriate to the situation.

To assess the net impact on employment in the affected community, the existing rate of unemployment should be considered as an indicator of worker mobility between jobs. When the unemployment rate is very high in an affected community, workers will have a difficult time finding other jobs in that community. Where possible, comparisons should be made between industry employment levels in the community and the nation as a whole. If employment levels in the industry as a whole are falling, the industry may be in decline regardless of the burden placed on them by water quality standards regulations. If it is clear that a private-sector entity will go out of business regardless of water quality standards, the impact of the pollution controls should not be viewed as substantial. If the entity is in a marginal position, however, the effect that meeting water quality standards will have on the entity and the community should be considered. Applicants should also consider whether the lack of alternative employment opportunities may lead to an increased need for social services in the affected community. If the costs of increased social services will be borne by the affected community, they should be included in the assessment of widespread and substantial impacts.

Socioeconomic impacts may also include effects on the local government(s) such as loss of property tax revenues. If the financial tests in Chapter 3 suggest that an entity or group of entities will close, then the assessed value of property and tax revenues will fall. If the entities are a major source of revenue for the affected community, this loss in tax revenue may be significant. One example might be water quality standards that affect farming practices in an agricultural region. Compliance with these standards might lower the profitability of many farms, even to the point of forcing them to cease operations. To

assess the impact, the loss in property tax revenues should be compared to total property tax revenues in the affected community to determine the relative size of the loss. In general, a drop of 1 percent in property tax revenues would be considered significant.

If compliance is evaluated in the context of a public investment for which the private entity is paying a share (e.g., a factory's share of the cost to upgrade a municipal treatment plant), then the analysis of widespread impacts is more complicated. If the financial analysis shows that the entity or group of entities cannot pay their share of the cost, then the socioeconomic and public entity analysis should include this additional burden on other users. Likewise, if the entity or group of entities are significant users of the local utilities, then a reduction in business activity or closure may lead to a lowered demand and possible decreased efficiency for local utilities. For example, a water supply system may be designed with a large industrial user in mind. If much of the demand is eliminated, the system may become excessively expensive for the remaining users.

Affected communities may also be faced with impaired development opportunities if the need to comply with water quality standards discourages other businesses from locating in the area. In situations where the affected facility has not been built, additional expenditures on water pollution controls may delay or cancel the construction. The applicant should, therefore, consider not only the loss of potential jobs and personal income to the community if the entity is not built, but the future losses in jobs, personal income and tax revenues from other businesses that would choose not to locate in the affected community.

There may be some cases in which the socioeconomic impacts of implementing pollution controls are large enough that they are felt at the state level. For example, the State may lose tax revenues from lost production and lost income if a business closes. This will be of particular importance if the business is a major employer in the State and/or the State is experiencing a period of high unemployment and fiscal distress. At the same time, the State may encounter increased expenditures for unemployment compensation and social services. In reviewing state level impacts, the applicant should consider the degree to which decreases in employment and personal income in one area of the State are offset by increases in employment and personal income in other parts of the State. In most cases, impacts at the state level will be relatively minor. If not, then impacts are widespread.

#### **4.4 Estimate Multiplier Effect**

The effects of increased unemployment, decreased personal income, and reductions in local expenditures by the entity or group of entities (public and private) will be compounded as money moves through the local economy. Some portion of the lost income would have been spent in the local economy for the purchase of other goods and services and thus for the salaries of other local employees. These local employees, in

turn, would have spent some portion of their income in the local economy. This multiplier effect means that each dollar lost to an employee results in the loss of more than one dollar to the local economy.

The U.S. Department of Commerce, Bureau of Economic Analysis (BEA) has developed several multipliers to estimate the effect of reduced economic activity on output (sales), earnings, and employment. These multipliers are available by industry sector for 39 or 531 different industry classifications, depending on the level of detail required. Applicants that are interested in using these multipliers are advised to consult a copy of *RIMS II Regional Multipliers: A User Handbook of the Regional Input-Output Modeling System*, available from the National Technical Information Service (NTIS). The NTIS document number is #PB-86-230-216 and orders can be placed by calling NTIS at (703) 487-4650. Additional information on using multipliers is available from the BEA at (202) 606-5343.

#### **4.5 Economic Benefits of Clean Water**

##### **Benefit-cost analysis is not required to demonstrate substantial and widespread effects under the Federal Water Quality Standards regulation.**

In many cases, there may be economic benefits that accrue to the affected community from cleaner water. For example, in a rural community where the primary source of employment is agriculture, the reduction of fertilizer and pesticide runoff from farms would reduce the cost of treating irrigation water to downstream users. Another example might be an industrial facility discharging its wastewater into a stream that otherwise could be used for recreational cold-water fishing. Treatment or elimination of the industrial wastewater would provide a benefit to recreational fishermen by increasing the variety of fish in the stream. In both cases, the economic benefit is the dollar value associated with the increase in beneficial use or potential use of the waterbody. The types of economic benefits that might be realized will depend on both the characteristics of the polluting entity and characteristics of the affected community, and should be considered on a case by case basis.

Since the assessment of benefits requires site-specific information, it will be up to States to determine the extent to which benefits can be considered in the economic impact analysis. This determination should be coordinated with the EPA Regional Office. A more detailed description of the types of benefits that might be considered is given in Appendix C. This appendix is not intended to provide in-depth guidance on how to estimate economic benefits; rather, it is intended to give States an idea of the types of benefits that might be relevant in a given situation.

#### **4.6 Summary of Financial Capability and Determination of Whether Impacts are Substantial and Widespread**

Using the guidance described in this document, the applicant must demonstrate that the pollution control measures needed to meet water quality standards are not affordable. In addition, the applicant will have to show that there will be widespread adverse impacts to the community if it is required to meet standards. A summary checklist of the steps required in this process is presented in Table 4-1. This checklist also presents the type of data the applicant will need to collect to support each step. Whether or not the applicant has successfully demonstrated that substantial and widespread economic and social impacts would occur, however, will depend upon the EPA Regional Administrator's review of the application.

If the EPA Regional Administrator determines that substantial and widespread economic and social impacts have not been demonstrated, then the discharger must meet the water quality standards. Alternatively, if substantial and widespread economic and social impacts have been demonstrated, then the discharger will not have to meet the water quality standards. The discharger will, however, be expected to undertake some additional pollution control. The criteria outlined in Chapters 2 and 3 should be used to determine the most protective pollution control technique that would not impose a substantial impact on the entity. In addition, the discharger should check with EPA and the State regularly to determine what else will be required of them. It is then up to the State to revise the standards in the water body to reflect the uses that would be achieved if the discharger adopts the next most protective pollution control technique. The State will also have to revise its water quality criteria to protect the newly attainable uses. The discharger's NPDES permit will then be revised to reflect the new limits associated with revised criteria. Finally, federal regulations require that water quality standards be reviewed every three years to determine if there is any new information or technology that allows attainment of the full designated use without causing substantial and widespread social and economic impacts.